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ABSTRACT

States have created "alternate" routes to teacher certification. Comparison of alternate and college-based programs reveals clear trends in recruitment but a mixed picture regarding development of expertise. Alternate certification represents a radical departure from the current norm of teacher preparation. Several factors have led to the rise of alternative certification: a decline in the public's confidence that colleges could recruit and adequately prepare enough effective teachers, concerns about teacher shortages, worries about the quality of newly entering teachers, and concern about the academic quality of individuals entering the teaching profession. Those in favor of the two competing efforts to reform teacher education, alternative certification and reform of college-based preparation, make different assumptions about what knowledge teachers need. University-based programs assume that pedagogical content knowledge needs to be developed in a professional program. Alternative route programs assume that pedagogical skills develop as teachers teach. However, research shows that alternative routes which rely on a teacher's own experience may miseducate teachers and may narrow the range of settings for which teachers are prepared. A key argument in favor of alternative certification is that it may draw mature individuals with prior work experience to the teacher pool. (Contains 120 references.) (JB)

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TRADITIONAL AND ALTERNATE ROUTES TO TEACHER CERTIFICATION: ISSUES, ASSUMPTIONS, AND MISCONCEPTIONS

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Abstract

States have created "alternate" (i.e., not college-based) routes to teacher certification. Comparison of alternate and college-based programs reveals clear trends in recruitment but a mixed picture regarding development of expertise. Alternate routes can get teachers into hard-to-staff schools and help them learn enough to remain there but seldom prepare teachers to help all students understand subject matter. College-based programs may provide visions of the possible but seldom provide adequate support or models. Improvement of teacher preparation will probably require closer work between school sites and colleges without giving up what either has to offer.

TRADITIONAL AND ALTERNATE ROUTES TO TEACHER CERTIFICATION: ISSUES, ASSUMPTIONS, AND MISCONCEPTIONS[1]

Trish Stoddart and Robert E. Floden

INTRODUCTION

Traditionally, the authority to educate and recommend teachers for credentialing has been vested in colleges, which certify to state credentialing agencies that candidates have successfully completed an approved program of teacher education and met state licensing requirements. Recently, however, states have begun to create routes to teacher certification—so-called "alternate routes"—that do not involve enrollment in a college-based program. Typically developed and administered by state departments of education or school districts, these alternate route programs give college graduates a short period of preservice training then provide continued training and support during their first year on the job. At the end of the training period the state agency or school district recommends the candidate for credentialing. Alternate routes to teacher certification have proliferated in recent years. The number of states allowing such programs has more than doubled from 18 in 1986 to 40 in 1992 (Adelman, 1986; Feistritzer, 1985, 1990, 1993).

Alternate route programs give school districts a choice between hiring teachers with two kinds of qualifications: those with academic and professional credentials and those with academic credentials alone. In almost every state, existing provisions, in the form of emergency credentials, allow school districts to hire unlicensed individuals for a period of years, provided they can demonstrate that no regularly licensed teachers are available (Feistritzer, 1993). Such provisions have been widely used to deal with teacher shortages. The difference in the current situation is that alternate certification laws permit those without college-based teacher preparation to gain a permanent teaching credential. What began as a short-term measure to deal with teacher shortages is now becoming an institutionalized alternative to college-based teacher education.

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Robert E. Floden is Co-Director of the National Center for Research on Teacher Learning and Professor of Teacher Education and Educational Psychology at Michigan State University. He has been active in the design and conduct of teacher education programs at both pre-service and doctoral levels. Floden has written on a wide range of topics, drawing on his expertise in philosophy, statistics, psychology, program evaluation, research on teaching, and research on teacher education. He is currently working on studies of the connections between professional development and education reform.

TWO WORLDS OF TEACHER EDUCATION

Alternate certification, therefore, represents a radical departure from the current norm of teacher preparation in the United States. It eliminates the virtual monopoly of teacher education held by colleges, shifting responsibility for the professional education of teachers to school districts and state education agencies. It is also changing the demographics of the teacher pool by recruiting into the profession individuals who are older and more likely to have worked in other jobs than

the traditional teacher education population (Darling-Hammond, Hudson & Kirby, 1989; Stoddart, 1992). Haberman (1986) has argued that we are seeing the creation of two worlds of teacher education: In one world, the college-based programs are increasingly characterized by higher admission standards, higher SATs, higher GPAs for entering and exiting the programs, extended programs of five and even six years, and a multiplicity of state mandates regarding specific content and courses that must be included in these programs; in the other world, college graduates (or, as in Texas, anyone with "some" college) can simply find a district to hire them.

These two approaches towards teacher education are based on very different assumptions about what is involved in learning to teach. Proponents of alternate route programs believe that individuals with subject matter expertise can learn to teach on-the-job provided they are given some inservice training and support. In contrast, supporters of university-based training believe that becoming a teacher requires several years of preservice professional training and supervised practical experience prior to assuming full-time teaching responsibility. Candidates entering the profession through these different routes go through programs that place different amounts of emphasis on preparation in subject matter, pedagogy, and the role of personal experience in learning to teach. These different routes into teaching, therefore, are likely to produce teachers with different kinds of expertise.

Proponents of both alternate and traditional approaches to teacher preparation argue that they are producing competent teachers, but there is little information currently available on what is involved in learning to teach in any kind of teacher education program and how such outcomes relate to pedagogical knowledge and skill (Feiman-Nemser, 1990). The differences in program content and context apparent in these two approaches to teacher preparation gives us an opportunity to examine some of the fundamental questions about learning to teach and the role various factors, including teacher education, play in developing the expert practitioner. In this chapter we examine some of the key assumptions underlying traditional and alternate approaches to teacher education: the difference between knowing your subject and teaching it, the difference between learning to teach on-the-job and learning to teach under the aegis of a college program, and the influence of prior work and life experiences on becoming a teacher. This analysis of the issues underlying alternate approaches to teacher preparation can inform policymakers, university teacher educators, and state and school district personnel in their efforts to raise standards in teaching.

Deregulation of Teacher Education

The movement towards school district-based teacher education followed a decline in the public's confidence that colleges can recruit and adequately prepare enough effective teachers. Critics argued that teacher education programs had little substance and that their lack of rigor and low academic standards actually discourage talented individuals from entering the teaching profession. (See Roth, 1986; Sikula & Roth, 1984.) From this perspective, college-based programs of teacher preparation are viewed as barriers to raising professional standards in teaching and need to be bypassed. Alternate route programs are designed to provide an alternative means of entry into teaching for individuals who do not wish to take the college route and to offer school districts the freedom to recruit, hire and train teachers.

Field-based routes to teacher certification are not new. Originally, school districts devised their own systems for training and certifying teachers. In the nineteenth century many large urban school districts developed "normal schools" to train their own teachers. These "normal schools" subsequently became teachers colleges (Haberman, 1986; Lutz & Hutton, 1989). It was not until early in the twentieth century that teacher education became primarily the responsibility of higher education. Under the aegis of the teachers' colleges the field-based assessment system was replaced with an institution-based, college credits system. Throughout this century the trend has been toward formalized college-based preparation for teachers and increased state regulation. This trend has continued through the last decade, with several projects and reports such as *Tomorrow's Teachers*, a report of the Holmes Group (1986) consortium of schools and colleges of education, which called for more extended and rigorous college-based teacher education.

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The move toward alternate routes represents a countervailing trend. Alternate certification programs move toward less professional education and toward the deregulation of teacher education. This move sets teaching apart from other professions—such as law, medicine, and psychology—where completion of an approved program of professional training from an accredited college is a mandatory prerequisite to professional licensing. Teaching is, for example, moving in the opposite direction from nursing, which is shifting away from on-the-job hospital-based training toward college-based training in nursing with supervised internships. This movement associates teaching more with trades—such as carpentry, plumbing, electrical work—where on-the-job training in the form of apprenticeships is the norm.

Estimates of the relative merits of these two routes to teaching depend on judgments about what teachers need to know in order to be effective instructors and about where and how they can best acquire that knowledge. Proponents of college-based education argue that teachers need an extended pedagogical education and guided practical experience before they begin teaching. Proponents of alternate certification, in contrast, argue that a person with a college degree can pick up what they need to teach on the job—and should to be allowed to.

There is little information currently available, however, on the consequences of these different approaches for teacher preparation. Research from the field of vocational education, which has had alternate certification since 1917, is inconclusive about the effectiveness of teachers without traditional teacher education degrees. Because vocational education teachers vary widely in experience and training, links between preparation and performance have been difficult to discern (Erekson & Barr, 1985). Researchers, however, have found that individuals brought into vocational education through non-traditional routes have abnormally high turnover rates as compared to other subject matter teachers (Lee, 1978; Nasman, 1979), indicating that alternate certification may not be effective as a recruitment device.

Most recent research comparing alternate and traditional forms of teacher preparation has focused on program requirements and demographic characteristics of teacher candidates, not on the effects of professional training (Adelman, 1986; Darling-Hammond, Feistritzer, 1990; Hudson & Kirby 1989; Stoddart, 1992; Stoddart & Floden, 1989). This research indicates that alternate routes can be effective in recruiting a diverse group of individuals to teach in hard-to-staff schools but does not tell us whether they stay in teaching or what kind of teachers they become.

Despite this lack of information, alternate routes into teaching are proliferating. Two thirds of the states have already dispensed with the approved program requirement as a prerequisite for professional licensing for teachers; several others have legislation pending (Feistritzer, 1993). These initiatives will institutionalize still untested assumptions about the professional training of teachers: that teachers, unlike other professionals, do not need university-based professional training; that teachers' knowledge and skills develop in simple ways—through knowing their subject, through learning to teach on the job, or by being a "natural teacher."

This move towards deregulation in the professional education of teachers comes at a time when schools of education are making fundamental reforms in the preparation of teachers and when the "cognitive revolution" has led to significant advances in our understanding of the learning and teaching of school subjects. (See for example, Anderson & Pearson, 1984; Bruner, 1985; Putnam, Lampert & Peterson, 1990; Resnick, 1986; Shulman, 1986.) The education community stands at a crossroads where the choice lies between investing in an extended professional education for teachers based on an established pedagogical knowledge base or returning to an apprenticeship system.

Sources of Pressure for Change in Teacher Education

Two factors that have contributed to the current press for change in teacher education are concerns about teacher shortages and worries about the quality of newly entering teachers. Alternate routes are seen as ways of increasing the supply of new teachers. Doubts about the value of teacher

education programs have led some to think that doing without college-based professional preparation would do no harm and might even increase the capacities of those entering teaching.

Teacher Shortages

The impetus to bypass the college route has been increased by continuing and growing teacher shortages (Carnegie Forum on Education and the Economy, 1986; Center for Educational Statistics [CES], 1985, 1987). School districts unable to recruit sufficient qualified teachers hire uncertified teachers, assign teachers out-of-field, cancel course offerings, and expand class sizes. Nationwide, large numbers of school children are receiving inadequate instruction in the fundamental disciplines of mathematics, science, history and English because there are insufficient qualified teachers to instruct them (Council for Basic Education [CBE], 1986; National Center for Education Statistics [NCES], 1990).

The situation is complicated by the fact that teacher shortages tend to be localized in specific subject areas, grade levels, and geographical contexts. The situation in urban education is chronic. Throughout this century there has been a shortage of professionally educated teachers in the major urban areas no matter how many teachers were being prepared nationally (Haberman, 1986). Teacher shortages in high demand subjects, such as mathematics and science, have been acute for at least two decades (Cagampang & Guthrie, 1988; Darling-Hammond, Hudson & Kirby, 1989).

There is little hope of quickly improving this situation through traditional sources of teacher supply. The most common route into teaching has been through an undergraduate teacher certification program. This path has typically been followed by college students who decide as sophomores to become teachers. Those wishing to teach elementary school often major in education; those wishing to teach secondary school major in a subject field and complete a series of prescribed courses in education. The 18- to 21-year-old cohort, which forms the traditional college age population, is declining, and a smaller proportion of this cohort is entering teacher education. Between 1975 and 1984 the proportion of college students majoring in education declined from 21 percent to 9 percent and the number of newly qualified teachers dropped by more than 50 percent—from 261,000 to 105,000 (Carey, Mittman & Darling-Hammond, 1988; CES, 1987; NCES, 1990). Universities are not recruiting sufficient teachers from the undergraduate populations to meet current or future demand. Although in recent years there has been an upswing in recruitment into teacher education programs (AACTE, 1989), the increase may not be sufficient to meet demand. Carey, Mittman, and Darling-Hammond (1988) estimated that, in the 1990s, the supply of new teachers from traditional sources may constitute less than two thirds of the number needed. Whether or not that dire prediction will be fulfilled on an overall basis in the remainder of this decade, shortages will continue in particular geographic and subject matter areas.

General policies that aim to relieve the teacher shortages by making the teaching profession more attractive (i.e., increases in teachers' salaries, career ladders) are often not effective in recruiting teachers in areas of the greatest need. Raising the beginning teacher salary may encourage a new graduate to train to teach history in a suburban school but is unlikely to encourage a new math and science graduate to consider a career as a teacher in an inner city school. The inner cities have, and in the foreseeable future will continue to have, chronic shortages in all fields and at all levels. The typical teacher education graduate prefers to teach in a suburban rather than urban school (Feistritzer, 1993; Haberman, 1988; Stoddart, 1992). In every state the urban areas rely on uncertified teachers or teachers teaching outside their subject area, whereas neighboring suburbs have up to 500 applicants for each job (Haberman, 1988).

This a serious problem in itself and is exacerbated by a decline in the number of minorities entering teaching. The importance of teachers as role models for children has long been recognized, especially when the teacher is a member of the students' own cultural group (Middleton, Mason, Stilwell & Parker, 1988). Increased opportunities for minorities in more lucrative and higher prestige professions have resulted in a dwindling supply of minority teachers (Darling-Hammond, 1984; Feistritzer, 1985; Post & Woessner, 1987; Smith & Welch, 1986). Projections suggest that minorities will constitute only 5 percent of the teaching force by the year 2000, while the minority student population will expand to 33 percent (Smith, 1984). By the year 2020, about 40

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percent of the K-12 population will be students of color (Pallas, Natriello, & McDill, 1989), with little expectation for a parallel increase in teachers of color. (See also Banks, 1991; Zeichner, 1993.)

Haberman (1990) has argued that different kinds of individuals need to be recruited—in particular, older individuals who are likely to have the personal maturity and commitment necessary to work in difficult school environments. If a new population of individuals is to be recruited into teaching, entry into teaching will need to be made more flexible. Proponents of alternate certification argue that teacher certification regulations should be restructured to expand the recruitment population beyond the traditional undergraduate cohort and to make entry into the profession easy for individuals at other ages and stages in their careers.

Early in the 1980s, several national reports included recommendations aimed at attracting outside experts into mathematics and science teaching (Boyer, 1983; National Commission for Excellence in Teacher Education, 1985; National Science Board Commision on Precollege Education in Mathematics, Science and Technology, 1983). These reports suggested that having qualified scientists and mathematicians assist in developing and delivering instruction would improve school instructional programs. Others have argued that eased entry into teaching should be provided for mature individuals willing to transfer into teaching from other professions. These might include early retirees, including technical experts from the armed services, homemakers who wish to re-enter the work force and bright young graduates of the arts and sciences who are undecided about their career direction and who will devote a few years to teaching (Gray, 1987; Wimpelberg & King, 1983).

Under traditional certification standards, potential teachers in all these groups would have to complete professional education college coursework before they could be granted a standard teaching credential and be allowed to assume full-time paid teaching jobs. Proponents of alternate certification believe that most of these individuals will be unwilling to take college-based coursework or assume the educational costs of becoming a teacher. The requirements of traditional teacher education programs, therefore, are viewed as barriers which prevent qualified individuals from entering the profession. An article (Alter, et al., 1989) in *Newsweek* magazine, for example, decries the fact that, "Right now NASA scientists aren't allowed to go to teach science in the public schools without going back to school" (p. 58). Proponents of alternate certification argue that teacher education requirements should be waived so that any academically qualified individual is allowed to teach.

The Issue of Teacher Quality

Over the past twenty years, concern about the academic quality of individuals entering the teaching profession has grown. Studies conducted from the 1960s through the 1980s showed that teacher education students were among the least academically able of all college students (Carnegie Forum on Education and the Economy, 1986; Koerner, 1963; Vance & Schlechty, 1982; Weaver, 1979). As a group, undergraduates aspiring to the teaching profession ranked at the bottom of the American College Testing Program (ACT) and Graduate Record Exam (GRE) distributions. Lanier and Little (1986) concluded that although many talented people become and remain teachers, teachers are underrepresented in the upper quintile of academic talent and overrepresented in the lower quintile.

On the basis of such findings, policy makers tend to blame teacher education programs for failing to recruit academically superior teachers. National reports such as *A Nation at Risk* (National Commission on Excellence in Education, 1983), *High School* (Boyer, 1983) and *High School and Beyond* (National Center for Educational Statistics, 1990), emphasized the need to recruit more academically able teachers. Underlying this admonition is the assumption that improving teachers' academic qualifications will improve the quality of teaching. Policy makers may even assume that recruitment of candidates with higher SAT scores is the best route to improving U.S. schools. These reports influenced the climate of opinion regarding the autonomy of college-based teacher education and the relative importance ascribed to subject matter and pedagogy in teacher preparation and certification; they set the stage for the development of alternate certification programs.

Altering Certification Requirements

The first important step in the development of alternate routes was to modify teacher certification procedures by adding a test performance requirement to the requirement for graduation from an approved program. Policy makers, concerned that the approved program method of teacher certification might be failing to ensure the academic competence of beginning teachers, began to introduce teacher testing legislation. A university's recommendation for teacher certification was no longer deemed a sufficient guarantee of teacher competence; in order to be granted a teaching credential, candidates now also had to pass a subject matter or basic skills test. Only a few states required tests of teacher competence in the 1970s. By 1984, all but nine states had such testing in place, were adopting such tests within three years, or were at least considering their use (Plisko & Stern, 1985). Acceptable performance on a state teacher test became a required indicator of teachers' competence.

The added test requirement step was a shift in substance as well as in governance. Adding the test typically shifted the focus of certification from pedagogical competence to general academic competence. Teacher testing programs often assume a strong relationship between academic quality—as defined by the use of such measures as GPA, test scores, and basic skills—and good teaching. Hyman (1984) summarizes the logic of teacher testing as: "Those who pass the test will be more effective teachers than those who do not" (p. 14). The implications of this assumption are spelled out by Nelson and Wood (1985):

> If prospective teachers are recruited from among the academically best of high school graduates; if they perform well in college courses; if they possess basic skills competency and are educated extensively in their academic disciplines; and if they are placed in schools under the guidance of master teachers, highly competent teachers will emerge. (p. 46)

The logical extension of this increased emphasis on general academic performance would be to abandon college-based professional training for teachers. If knowing one's subject is a sufficient qualification to begin teaching, passing a subject matter exam might be a sufficient guarantee of teacher competence. These views are represented in most alternate route programs which require individuals to pass tests that demonstrate their competence in basic skills and subject matter; give them an orientation to state or school policies, procedures, and practices; and allow them to begin teaching with support and guidance from a mentor teacher or administrator (Adelman, 1986; Feistritzer, 1990).

Reforming College-Based Programs

A different approach to enhancing teacher recruitment as well as teaching quality would be to build on current efforts to improve college-based programs. Not surprisingly, those associated with college-based programs frequently suggest that alternate routes are *not* the option of choice. A position statement issued by the American Association of Colleges of Teacher Education (AACTE, 1986) argues that improving the quality of instruction requires that professional education and certification standards for teachers be strengthened, not diluted. While recognizing the need to increase the teacher supply and diversify the teacher pool, AACTE cautions that certifying large numbers of inadequately prepared teachers could negatively affect the quality of instruction in the public schools for decades.

AACTE contends that the teacher shortage could be used as an opportunity to improve schools by introducing a new generation of highly skilled professionals. They point out that college-based teacher education programs have developed a number of successful alternative training models designed for a population different from the usual 18- to 24-year-old undergraduates (e.g., MAT programs, Experienced Teacher Fellowship Programs, Teacher Corps). Such programs provide alternative training with the same standards and expectations of competence as a traditional teacher education program. They propose that universities (in partnership with school districts) develop alternative training programs that meet the following criteria:

1. selective admission standards including but not limited to (a) a baccalaureate degree, (b) assessment of subject matter competence, (c) assessment of personal characteristics, and (d) assessment of communication skills;

2. a curriculum that provides candidates with the knowledge and skills essential to the beginning teacher;

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3. a supervised internship in which candidates demonstrate pedagogical competence; and,

4. an examination that assures competence in the subject field and in professional studies.

AACTE argues that entry into teaching can be made more flexible within the college framework without lowering standards.

The AACTE is not the only organization proposing reforms in teacher education. The Holmes Group, for example, is working to implement dramatic reforms in the structure of programs in its member institutions, reforms that may lead to an increase in the quality of teachers completing such programs. The Holmes Group was founded in 1985 by a group of deans concerned about the current state of teacher preparation. It now includes deans and chief academic officers from about 100 research universities across the 50 states, whose institutions have formed a consortium intended to improve teacher education and upgrade the profession of teaching.

Tomorrow's Teachers, the group's first report, contains proposals which respond to most of the criticisms of teacher education discussed above. To improve the academic quality of teacher candidates, the group has called for the design of more coherent undergraduate majors and greater emphasis on subject matter preparation for teachers. Since publication of the report, colleges of education in many Holmes Group institutions have been working with liberal arts and science departments to improve the academic preparation of teachers. For example, at Michigan State University, education faculty collaborated with faculty in the Department of Mathematics in the development of a sequence of three mathematics courses required for all prospective elementary teachers (Schram, Wilcox, Lanier, & Lappan, 1988). To facilitate better articulation between subject matter, pedagogy and practice in the training of teachers, many universities are collaborating with school districts in setting up Professional Development Schools, analogous to teaching hospitals, as sites for the demonstration of exemplary practice (Holmes Group, 1990; Stoddart, 1993a).

Advances have also been made in establishing a professional knowledge base for teaching. The cognitive revolution has led to significant advances in understanding the acquisition of knowledge in content areas such as mathematics, reading, writing, and science. These advances have been used to develop more effective instructional practices. (See, for example, Anderson & Pearson, 1984; Resnick, 1986; Resnick & Ford, 1981; Schoenfeld, 1987.) This work has stimulated research by Shulman and his colleagues, in a project funded by the Carnegie Task Force on Teaching as a Profession, which focused on the development of teachers' subject-specific pedagogical understandings. (See, for example, Grossman, 1988; Grossman, Wilson & Shulman, 1989; Shulman, 1986, 1987a, 1987b; Wilson, Shulman & Richert, 1987; Wilson & Wineburg, 1988.) This pedagogical content knowledge underlies the ability of effective teachers to develop instruction that is responsive both to the structure of the subject matter and to the developmental and learning needs of individual students. In an organizational position statement, the AACTE (1986) has argued that this new knowledge about learners and teachers can form the basis for the education and building of a teacher force of highly skilled professionals. Building on the work of Shulman and others, the National Board for Professional Teaching Standards is developing examinations that will certify advanced competence of teachers in particular grade levels and subject areas (National Board for Professional Teaching Standards, 1990).

Misconceptions about Alternate Routes

The development of alternate routes to teacher certification is often portrayed as a move to eliminate the professional education of teachers. The public discussions about alternate routes to teacher certification often give the impression of a single basic model which dispenses with all "professional" coursework (e.g., teaching methods, educational psychology, social foundations). This impression is wrong. Alternate routes take a variety of purposes and forms but usually include some professional coursework or its equivalent (Stoddart, 1992). The choice between a traditional program and an alternate route is not a choice between some professional preparation

and no such preparation. It is, instead, a decision about the timing and institutional context for teacher preparation and about the mix of professional knowledge and skills to be acquired.

Even a cursory examination of alternate certification programs would show that they vary widely in purpose, content, and structure (Darling-Hammond, 1992; Zumwalt, 1991). Programs have been developed in a variety of policy contexts and by different agencies—school districts, state departments of education, state legislatures and universities (Bliss, 1992; Natriello & Zumwalt, 1993, Stoddart, 1992; Zumwalt, 1991). Because the development of the various alternate route programs has been driven by differing policy considerations (Zumwalt, 1991), the purpose of alternate route programs varies. For example, the California and Texas programs were driven by the urgent need to recruit teachers to meet the demands of urban multicultural school districts (Lutz & Hutton, 1989; Stoddart & Floden, 1989). The Connecticut program, on the other hand, focused on improving the quality of the teaching force and was developed in a state with a teacher surplus (Bliss, 1992).

The content taught in alternate route programs varies widely in quantity and quality (Feistritzer, 1990). Some programs offer full certification on the basis of transcript and résumé analysis while others require individuals to complete the equivalent of a traditional approved program of teacher preparation.

The role of higher education in the development and implementation of these programs also varies. In New Jersey, the alternate route program is run almost exclusively by teacher education faculty from local colleges and universities (Zumwalt, 1991). The Connecticut and Texas programs are collaboratively staffed by local school district personnel and university faculty (Bliss, 1992; Lutz & Hutton, 1989). In California, the school district developed programs are staffed almost exclusively by district employees—both teachers and administrators (Stoddart & Floden, 1989).

A common misconception about alternate routes to certification is that they are not programs of teacher education but short cuts that allow unqualified individuals to receive a teaching credential. It is widely believed, for example, that teacher candidates in alternate programs receive little or no pedagogical preparation (Gideonse, 1984; Watts, 1986). Most alternate route programs, however, do provide some form of teacher education (Adelman, 1986). Although such programs vary from state to state, many resemble traditional teacher education programs in content, rigor and expected outcomes. They depart from traditional preparation by focusing on a different source of trainees, emphasizing somewhat different procedures, and compressing the schedule for preservice training (Smith, Nystrand, Rich, Gideonse, & Carlson, 1985).

A key difference between alternate and university-based programs is the context and focus of the training. Typically, undergraduate university teacher education programs provide preservice liberal arts subject matter and professional education at the university site, interspersed with short periods of supervised teaching practice in schools. In contrast, alternate certification programs provide inservice professional education while candidates are engaged in full-time teaching responsibilities. Alternate certification programs, therefore, generally require fewer hours of formal education coursework than are required under regular certification standards but typically require more hours of supervised field experience as a full-time teacher (Darling-Hammond, Hudson, & Kirby, 1989). They focus more on teaching methods and classroom management than subject matter because candidates are screened for subject matter competence before admission (Darling-Hammond, Hudson & Kirby, 1989; Stoddart, 1992).

An emerging pattern in alternate route training is the model used by the Los Angeles Unified School District (LAUSD) and State of New Jersey programs. In each of these programs, teacher candidates who have completed a baccalaureate degree and demonstrated subject matter competence in the area in which they seek certification are given a short period of full-time, preservice training before they assume full-time teaching responsibilities. They then continue to take professional training courses while they teach. In the LAUSD, teacher candidates go through a 15-day program which focuses on the District's policies, practices and procedures and then take a further two years of coursework and a week of multicultural education at a district training center (Stoddart, 1992). In New Jersey, teacher candidates spend 20 days working in a classroom with an experienced

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teacher and gradually assume teaching responsibilities followed by 20 weeks of professional education at a state regional training center (New Jersey State Department of Education, 1984).

Alternate route programs, therefore, tend to focus on the pragmatic aspects of teaching—what to do tomorrow and how to survive one's first year of teaching—more than the theoretical or philosophical aspects of teaching and learning (Stoddart & Floden, 1989). This practical emphasis is supported by the important role ascribed to practicing teachers in the education and induction of alternate route candidates. In programs such as the LAUSD District Intern Program, courses are taught by practicing teachers and administrators who provide practical examples of instruction and classroom management drawn from their own experience (Stoddart, 1992). Most alternate route programs provide mentor teachers to support and guide candidates in their first year of teaching. Such mentors help teacher candidates negotiate with the school system and provide feedback on instructional practice (Feiman-Nemser & Parker, 1990, 1992).

This difference in emphasis is also apparent in the evaluation procedures used in university-based and alternate route teacher education programs. In most university programs recommendation for a teaching credential is based on successful completion of university coursework—based on academic criteria of written essays and examinations—and positive evaluation from a university supervisor of approximately 10 to 16 weeks of supervised student teaching. In most alternate route programs the main criteria for being recommended for a teaching credential is a positive evaluation from the school principal based on one or two years of full-time teaching experience.

The difference between alternate route and traditional programs of teacher education, therefore, lies not in the presence or absence of a professional training program but in the content and focus of such programs, which are based on different assumptions about what it means to learn to teach.

The Assumptions Underlying These Two Reform Directions

Those in favor of each of the two competing efforts to reform teacher education—alternate certification and reform of college-based programs—make different assumptions about what knowledge teachers need. Supporters of alternate routes assume that anyone with subject matter expertise and some support can begin teaching without professional education. In contrast, defenders of college-based teacher education programs assume that becoming a teacher requires subject matter knowledge, professional education, and guided practice prior to assuming full classroom responsibility. Supporters of alternate routes assume that individuals can develop a full range of professional practices by learning to teach within the specific context and using the curriculum of an individual school district. Supporters of college-based programs of teacher education believe that developing professional expertise requires exposure to a range of theory and research-based curriculum and instructional practices. Finally, proponents of alternate route programs argue that different groups of people must be recruited into teaching—people who are more mature and have a wide range of life experiences. Proponents of college-based programs assume that sufficient numbers of high quality teachers can be recruited from the undergraduate college population.

To date, few research or evaluation studies have explored the implications of these assumptions for the professional development of teachers and for the kind of instruction offered in the public schools. Once again a radical educational reform is being rushed into place without thoughtful research and analysis.

Assumption One: If One Knows a Subject, One Can Teach It

Few would disagree with the assertion that in order to teach effectively, teachers must understand their subject matter. Past efforts to show a relationship between teachers' content knowledge and their teaching have, however, been largely unsuccessful (Ball, 1988a, 1988b). Begle (1979) demonstrates that the number of credits in college math is positively associated with student achievement only 20 percent of the time and is actually negatively associated with student achievement 15 percent of the time. Ball (1988a) shows that teacher candidates with extensive coursework

in the subject they will teach still have difficulty in explaining basic concepts, and that few could give explanations for basic principles and meanings. Such findings raise questions about the relationship between "knowing" one's subject and teaching effectively. Someone who "knows math" may be able to solve problems and do well in math courses, yet not be able to explain concepts to others. Personal knowledge of mathematics may not be the same as knowing how to teach it.

Research in cognitive psychology indicates that in-depth knowledge of subject matter may actually impede effective communication of concepts. As individuals develop expertise in a subject, they develop a "technical shorthand" of concepts and terminology (Chi, Glaser, & Rees, 1982). This technical shorthand is not easily understood by novices. Effective teaching requires the expert to unpack, expand, and simplify his personal knowledge. Such pedagogical understandings are not typically acquired with subject matter expertise but need to be developed and viewed as distinct professional knowledge and skills.

Shulman (1987b) describes teaching as an act of pedagogical reasoning:

> As we have come to view teaching, it begins with an act of reason, continues with a process of reasoning, culminates in performances of imparting, eliciting, involving, or enticing, and is then thought about some more until the process can begin again. In the discussion of teaching that follows, we will emphasize teaching as comprehension and reasoning, as transformation and reflection. (p.13)

He describes pedagogical reasoning as involving a cycle of activities: comprehension, transformation, instruction, evaluation, and reflection. The starting point is comprehension—personal understanding of the concept to be taught—but it is not the end point. Personally understood concepts must be transformed into forms that can be understood by learners. Shulman (1986) calls this pedagogical content knowledge.

University-based teacher education programs assume that pedagogical content knowledge needs to be developed in a professional program before individuals begin full-time teaching. The assumption underlying alternate route programs is that teachers' ability to effectively represent and explain content to students can be developed as they teach it.

Assumption Two:
One Learns to Teach By Doing It

Proponents of alternate certification argue that formal university-based professional training for teachers is unnecessary in the development of pedagogical expertise, because teaching is a practical skill that is best learned on the job. Lyons (1979) asserts, "since teaching is a pragmatic art best learned by experience, school districts should establish apprenticeship programs for people who can satisfy the literacy requirements and show competence in subject matter" (p. 109). (Some people may not even need the practical experience, because they are "born teachers.") Alternate route programs, therefore, assume that preservice teacher education courses are unnecessary. Anyone with a baccalaureate degree (to provide a good general education) and grounding in the subject matter to be taught can—with some support—develop teaching expertise through on-the-job training.

What are the consequences of learning to teach by doing it? Recent research on what teachers learn from first-hand classroom experience has shown that it can be miseducative (Feiman-Nemser, 1983; Zeichner, 1986). This research has shown that student teachers and beginning teachers, without proper guidance, often learn lessons from school experience that restrict their ability to explore a variety of instructional practices and undermine teachers' ability to continue to learn from experience over a career (Feiman-Nemser & Buchmann, 1987; Hoffman & Edwards, 1986; cf. Buchmann, 1993). Practical teaching experience, in isolation from professional training, tends to socialize teacher candidates into the prevailing school culture, rather than expanding their awareness of a range of different teaching practices (Hull, 1981).

By relying on *local* experience, alternate routes may also tend to narrow the range of settings for which teachers are prepared. The state departments of education and school districts who organize the programs generally aim to educate teachers who can fit in with local policies, curriculum and instructional practices (Stoddart & Floden, 1989). Typically, programs offer some

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coursework, in the evenings and during the summer, and the support of a mentor teacher. The coursework, often taught by local teachers, focuses on implementing the district curriculum and provides practical examples of how to do this (Adelman, 1986; Stoddart & Floden, 1989). Mentor teachers induct teacher candidates into district policy, practices, and procedures and help them mediate the system (Feiman-Nemser & Parker, 1992).

College-based teacher education, on the other hand, aims to expand individuals' personal views of pedagogy and guide students in exploring and questioning a range of instructional approaches. A current trend is to prepare reflective practitioners who critically analyze prevailing instructional practice (Feiman-Nemser, 1990). By helping students to break out of the restrictions of their individual school experience (Floden & Buchmann, 1993), they aim to educate teachers who can take their university-learned pedagogy, teach effectively in any school in any part of the country, and introduce new and innovative practices. College programs, however, place less emphasis on context-specific needs. One consequence of this policy may be the general failure of college programs to produce teachers who are willing and capable of working in inner city schools and with multicultural populations (Haberman, 1986).

Assumption Three:
Mature Individuals with Prior Work Experience Make Better Teachers

One of the key arguments in favor of alternate certification is the need to expand and diversify the teacher pool. The traditional route into teaching has been through an undergraduate major in education. As a consequence, about 80 percent of teacher candidates are under 25 years of age (Haberman, 1990). The typical teacher education graduates have limited life and work experiences. The majority of their pre-professional lives have been spent in school, and the views they bring to teaching are heavily influenced by their own experiences as students (Lortie, 1975). In addition, the majority of teacher candidates come from rural areas, small towns, or the suburbs (Zimpher & Ashburn, 1992). Limitations in maturity and personal experience may make it difficult for such individuals to relate effectively to a diverse student body. Many preservice teachers have negative attitudes towards individuals who are different from themselves (Law & Lane, 1987). Proponents of alternate certification believe that the teacher pool would be enriched by recruiting individuals with a wider range of life and professional experiences.

There is increasing evidence that personal perspectives, based on prior life experiences, exert a powerful influence on what students learn in teacher education programs and the kind of instruction beginning teachers practice in their classrooms (Britzman, 1986; Bullough, 1989; Connell, 1985; Crow, 1987; Ginsberg & Newman, 1988; Gomez & Stoddart, 1991; Hollingsworth, 1989; Holt-Reynolds, 1992; Knowles & Holt-Reynolds, 1991; Ross, 1987; Zeichner, Tabachnick & Densmore, 1987). These personal perspectives have been shown to serve as major pedagogical driving forces several years into a teaching career (Crow, 1988). Developers of traditional and alternate routes into teaching differ in their evaluations of the importance of these personal perspectives in learning to teach. In alternate route programs they seek to build on personal perspectives as sources of knowledge for teaching (Fox, 1984; Gray, 1987). In university-based programs they seek to replace naive views of teaching with a professional pedagogy based on research and theory (AACTE, 1986).

Haberman (1990) has argued for recruiting a greater number of mature individuals into the teaching profession. He believes that college-age students, still in the stages of late adolescence and early adulthood, are not developmentally mature enough to teach in difficult environments. Youth in suburban and urban school districts alike often place incredible demands on the person who would take charge of their learning. To be successful in the job of a teacher an individual must have a strong sense of personal identity, good support systems, and unusually high commitment to the roles and tasks of the job (Wimpelberg & King, 1983).

Citing the work of Erickson (1963), he argues that young adults are self absorbed, searching for identity—and that it is not until the middle years that a person typically becomes concerned with others beyond his or her immediate family, with future generations, and the nature of the society and world in which future generations will live. To support his contention he cites Marcia's (1976) studies which found that only about 20 percent of college-age

students had achieved a strong identity status. The majority were still searching for identity and 24 percent were in the stage of diffusion where they had no commitment to anyone, and no commitment to any philosophy or set of beliefs. Haberman argues that it is unrealistic to expect individuals in this stage of life to be able to identify with and commit to students who come from very different backgrounds from themselves.

It has been suggested that older individuals not only bring greater maturity to the teaching situation but also bring with them the accumulated expertise they have acquired in the work place. They not only know their subject but also know how to use it in the real world. For example, Gray (1987) has argued we should recruit engineers to teach mathematics or retired technical personnel from the armed forces to teach science. It is assumed that by relating subject matter knowledge to real life applications, such individuals will be able to more effectively teach it to students. Individuals with work experience in other fields will also bring with them different views of professional roles and organization structures. Many traditional teacher education candidates have no institutional experience in organizations other than schools—either as students or teachers. It may be hard for them to challenge the status quo or conceive of different ways of organizing schools.

The effects of maturity and prior work experience are important issues to explore. Are older individuals more sensitive to issues of multicultural education? Do individuals who have worked in other occupations use more concrete, real-life representations of subject matter in their teaching?

Conclusion

Learning to teach is a complex process which involves the integration of knowledge, skills, and dispositions shaped by both personal and professional experiences. The diversification of program content and context contained in these different forms of teacher preparation provides a natural laboratory in which to examine some of the key questions about the development of expertise in teaching, and the role various factors, including teacher education, play in developing the expert practitioner. Findings from initial research that compares the outcomes of traditional and alternate routes to teacher certification reveal some clear trends in recruitment patterns but a more confused picture in respect to the development of professional expertise.

Studies of alternate certification programs in California, New Jersey, and Texas demonstrate that the population recruited into such programs differs from the traditional teacher education population on several demographic dimensions (Houston, Marshall, & McDavid, 1993; Natriello & Zumwalt, 1993; Stoddart, 1992). They are older and are more likely to minority males who have transferred from other occupations. They also differ on their prior experience with and dispositions toward teaching in urban schools. The alternate route teachers have more experience living and working in urban environments and are more interested in working in the inner cities (Stoddart, 1992; Feistritzer, 1993).

Alternative routes to teacher certification are making a significant contribution to the recruitment of teachers for urban schools. Between 1986 and 1991, over 10,000 new teachers were recruited through alternate routes in nine states in the Southern Regional Board—Alabama, Florida, Georgia, Maryland, Mississippi, North Carolina, South Carolina, Texas and Virginia (Corbin 1991). In 1989-90, Texas alone enrolled 1,064 new teachers in its alternative route program (Texas Education Agency, 1990). Between 1984 and 1990, the Los Angeles Unified School District recruited 1100 new teachers through the alternate route program, many of these in the high need recruitment areas of math, science and bilingual education (Stoddart, 1992).

Such routes also attract a significant number of minorities into teaching. In Texas, the alternative route to teacher certification is viewed as a primary means of attracting minority professionals into the classroom: In 1989-1990, approximately 50 percent of the interns were from minority groups and 30 percent were males (Texas Education Agency, 1990). This compares to a Texas teaching force that is 22 percent male and 22 percent minority. Over the six years from the LAUSD alternate route program's inception until 1990, one third of the teachers recruited have been from minority groups. Alternative route

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candidates are also more likely to hold high expectations for low income and minority students than the college-based teacher candidates (Stoddart, 1992).

The findings of research on the development of professional expertise, however, are not so clear. Researchers from the National Center for Research on Teacher Education found both similarities and differences when they compared the development of pedagogical knowledge and skill in the LAUSD alternate route interns, with three groups of university-educated secondary math and English teachers (Ball & Wilson, 1990; Gomez & Stoddart, 1991; Stoddart, 1991, 1993b).

Ball and Wilson (1990), in a study that compared university-educated and alternate route secondary mathematics teachers, found little difference in the mathematical knowledge or instructional practices between the groups. Both groups of teachers could competently solve mathematical problems for themselves—they knew the correct rules and procedures—but had difficulty explaining the underlying mathematical meaning of the concepts. The majority of teachers in both groups believed that effective teaching involved showing and telling students how to solve mathematical problems and giving them practice. They had difficulty in generating concrete examples or activities which would enable students to construct mathematical understanding. These ideas about effective teaching were manifested in their teaching practices (Stoddart, 1991). The majority of novice teachers in both groups used traditional didactic instructional methods in their classrooms—teacher lecture and demonstration of problem solutions on the blackboard followed by individual student work on problems from the textbook with feedback from the teacher. Ball and Wilson argue that neither group of teachers is being prepared to teach mathematics in a way that will adequately develop students' conceptual understanding. Both the traditional and alternate routes to teacher education produce teachers who focus on drilling algorithms into students.

In contrast, Gomez and Stoddart (1991) found significant differences in the pedagogical knowledge and instructional practices for teaching writing between novice secondary English alternate and traditional teachers. Both groups of teachers came to teacher preparation with extensive subject matter preparation—all the candidates had completed a baccalaureate degree with an English major, with a GPA of 3.0 or more—and there were no significant differences in their content knowledge. The university-educated English teachers, however, were significantly more knowledgeable about specific approaches to teaching writing. They had gone through a teacher education program which emphasized the "process" approach to teaching writing, in which students are viewed as "authors" who own the text they are producing and who learn to improve their writing through the processes of drafting, revising, and publishing. The university-educated teachers were extremely knowledgeable about this approach and as part of their professional program had developed an extensive curriculum resource file to draw on in their teaching practice. In contrast, the alternate route teachers had developed restricted and highly idiosyncratic approaches to instruction that tended to be based on their own learning, and life and work experiences.

These findings are supported by Stoddart's (1991) case studies of alternate route teachers. She also found that novice teachers' prior life and work experiences and the subjects they taught were the dominant influences on their developing professional practice. While the English teachers in these studies developed highly creative approaches to instruction, and the mathematics teachers used standardized didactic models, both approaches were essentially unidimensional. These teachers are "singers with only one song;" they developed a modal approach to practice which they applied and misapplied, with little opportunity to reflect on and critically analyze the consequence of their teaching actions (p.278).

These case studies of individual teachers are consistent with the conclusion that teachers in alternate routes typically learn how to function in their local context but do not learn skills designed to be used in varied settings. The studies of mathematics teachers also show that university-based preparation provides no guarantee that teachers will learn what is needed to teach all students in ways that promote understanding.

The interest in alternate routes has grown out of dissatisfaction with the system in place for recruiting and preparing teachers. That dissatisfaction is based on problems that are documented in studies of teachers from all methods of preparation:

problems of recruiting teachers to work in areas of continuing needs, and problems of helping teachers learn what they need to know to teach subject matter to diverse learners.

The initial years of experience with alternate routes indicate that these routes can get teachers into hard-to-staff schools and help them learn enough to remain there, a least for a while. Alternate routes can provide some support in learning to manage, which is especially needed in some schools. But this emphasis on management is a limited virtue. Throughout this century, higher education has been criticized for failing to help teachers learn to go beyond order and discipline to promote meaningful learning (Dewey, 1904/1965; Feiman-Nemser & Floden, 1986; Fuller & Bown, 1975; Hoy & Rees, 1977). Current alternate routes are not well positioned to prepare teachers for the "break-the-mold" schools some policy makers are currently seeking to create.

College-based programs may be better at providing visions of the possible, but current programs still often do not provide the continuing support or models that would help teachers learn to teach in ways that will enable students to attain the more challenging standards currently being developed at state and national levels.

Both traditional and alternate routes to teacher preparation need improvement. The current crop of alternate routes do not seem to significantly improve teacher learning, but they also may be no worse than many college-based programs. To achieve new goals for increased subject matter understanding for all students, teachers will need to learn much that they have not previously been asked to know—about the subjects and students they teach, about the connections between schools and other parts of society, and about teachers' own learning. The improvement of teacher preparation will probably require closer work between school sites and colleges, without giving up what either has to offer.

Notes

[1]The paper will appear (as Chapter 7) in K. Zeichner (Ed.), *Reforming Teacher Education in the United States*. New York: Teachers College Press, in press.

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